Compressors/Turbines Process Monitoring Program
Ethylene Unit
Cedar Bayou Plant

Ethylene Unit Process Technology Improvement Team

Philip Rosen

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Chevron Phillips Chemical Company LP

Compressors/Turbines Process Monitoring Program – General Information & Background

Purpose

Provide Ethylene Unit Operations and Process Engineering with a tool to monitor the four major compressors and their associated equipment:

- Real-time tracking of critical variables
- Detection of atypical operation
- Diagnostics
- Support for corrective action

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Compressors/Turbines Process Monitoring Program – General Information & Background

Constructed June 2001 to June 2002 By

Michael G. Collier, Operations

Bruce D. Murray, CPChem PTI Team

Charles T. Polito, Technology

James B. Ralls, Operations

Robert O. Ricker III, Process Engineering

Mark A. Roffman, Process Automation

Timothy R. Sullivan, Operations

Philip E. Rosen, Process Engineering

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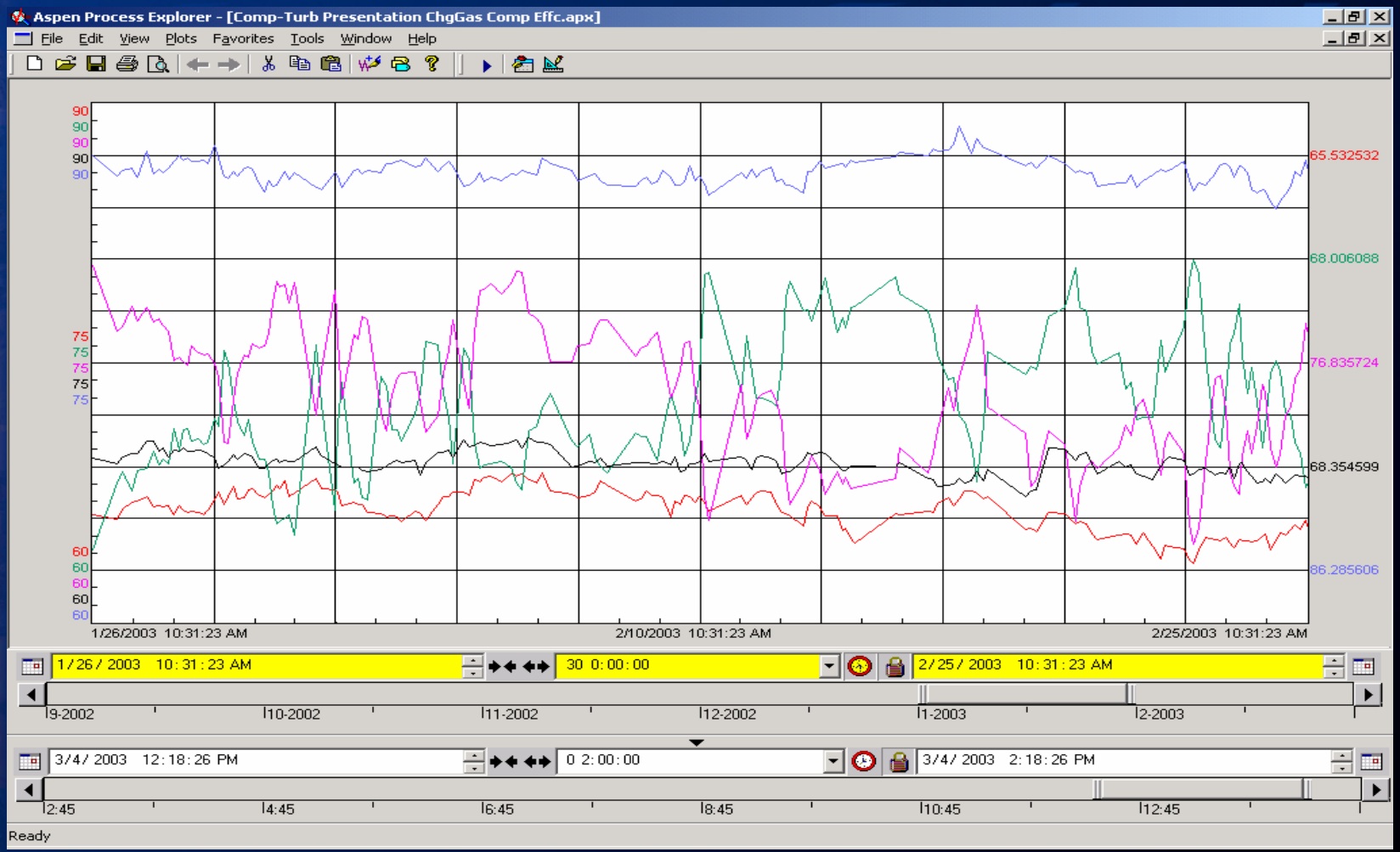
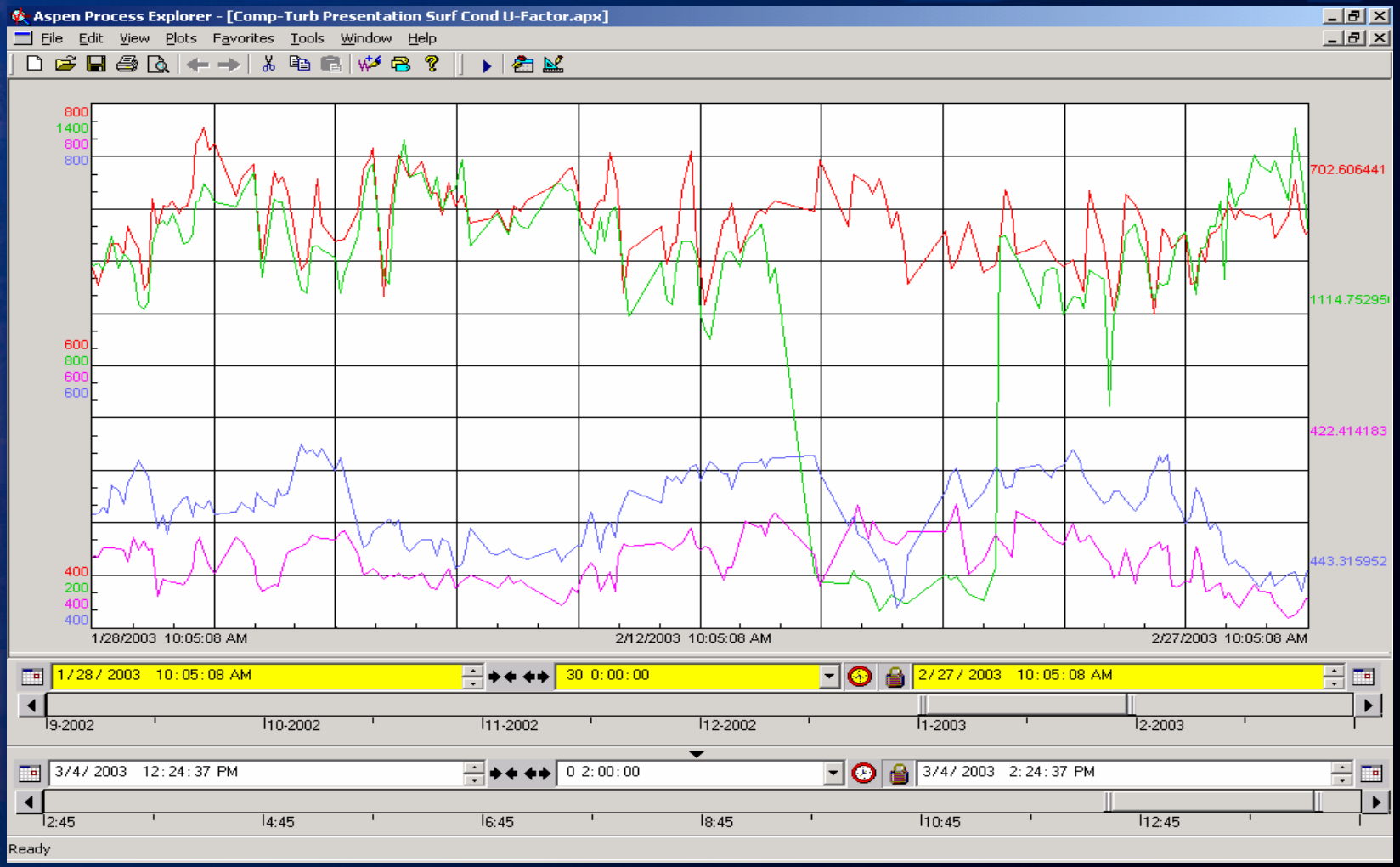
Compressors/Turbines Process Monitoring Program – Typical Stage Efficiencies



Compressors/Turbines Process Monitoring Program – Surface Condensers' U-Factors



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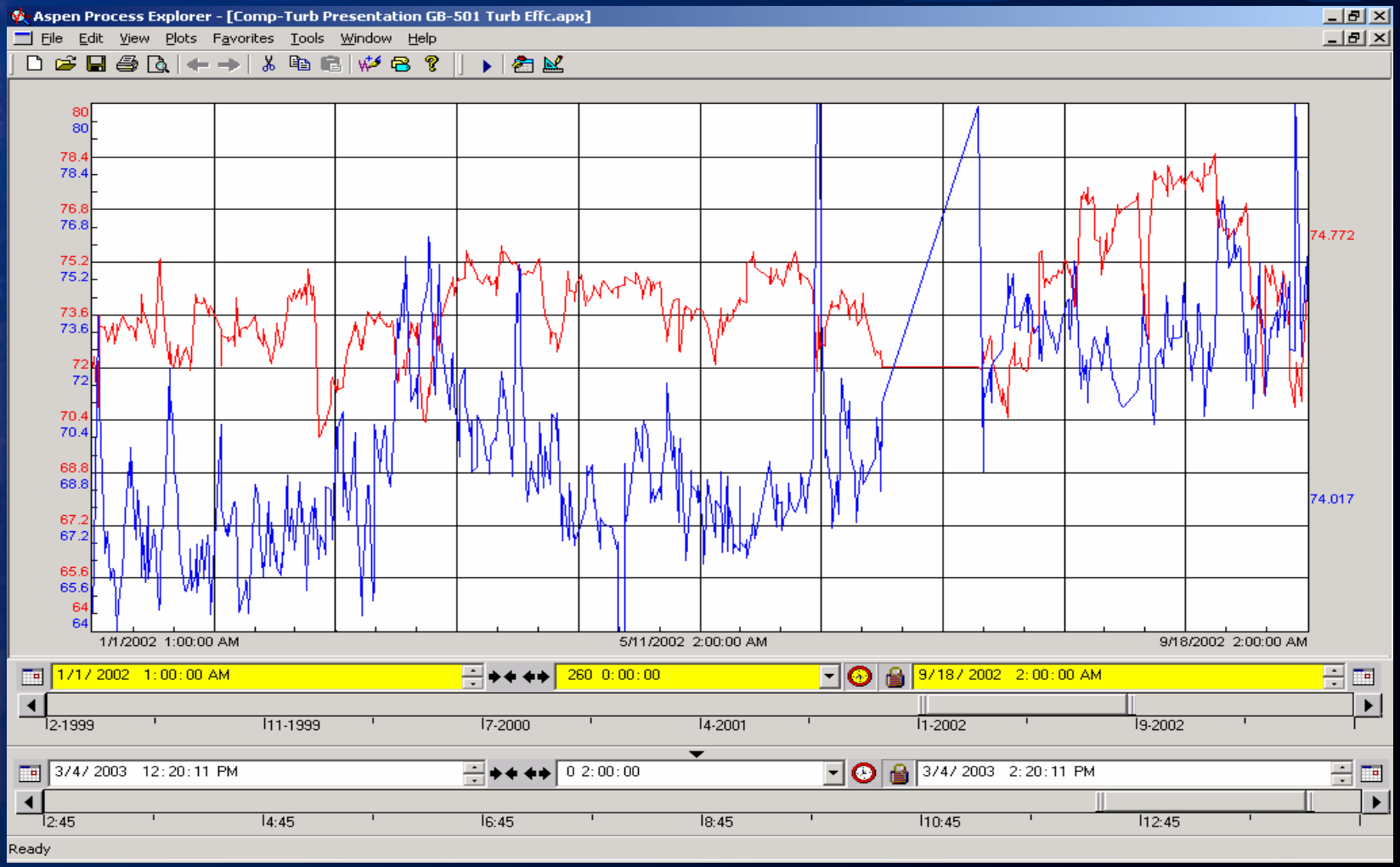
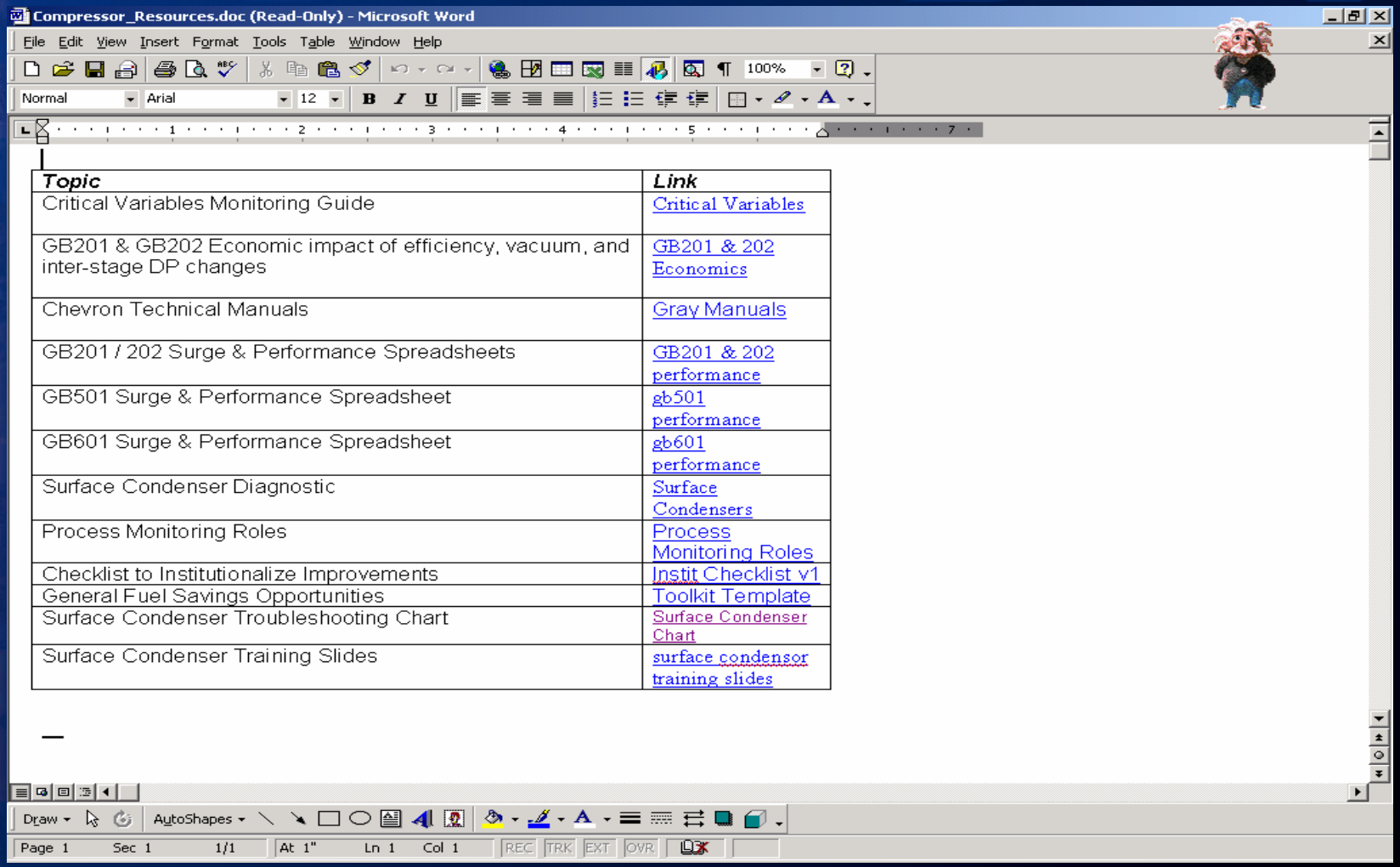
Compressors/Turbines Process Monitoring Program – Compressor's Turbine Efficiency Recovery



Compressors/Turbines Process Monitoring Program – Information Links



Topic	*Link*
Critical Variables Monitoring Guide	Critical Variables
GB201 & GB202 Economic impact of efficiency, vacuum, and inter-stage DP changes	GB201 & 202 Economics
Chevron Technical Manuals	Gray Manuals
GB201 / 202 Surge & Performance Spreadsheets	GB201 & 202 performance
GB501 Surge & Performance Spreadsheet	gb501 performance
GB601 Surge & Performance Spreadsheet	gb601 performance
Surface Condenser Diagnostic	Surface Condensers
Process Monitoring Roles	Process Monitoring Roles
Checklist to Institutionalize Improvements	Instit Checklist v1
General Fuel Savings Opportunities	Toolkit Template
Surface Condenser Troubleshooting Chart	Surface Condenser Chart
Surface Condenser Training Slides	surface condensor training slides

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Benefits of the Compressors/Turbines Process Monitoring Program at CPChem's Cedar Bayou Plant Ethylene Unit:

- Focuses on increasing compressor efficiency (saves up to $180,000 per year for every 1% increase in efficiency)
- Zero cost (uses existing plant resources and software)
- Monitoring helped save approximately $5,000,000 in throughput from declining compressor performance
- Monitoring helps reduce the frequency of costly circumstantial unit shutdowns

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